



## FCAB UPDATE

*Week of January 13, 2003*

(Last update was December 2, 2002)

### MEETING SCHEDULE

**Stewardship Committee Meeting**  
Tuesday, January 21, 2003, 6:30 p.m.

**Trailer T-1 On Site**

**Full FCAB Meeting**  
Wednesday, January 22, 2003, 5:30 p.m.

**Crosby Senior Center**

### ATTACHMENTS

- 1/21/03 FCAB Draft Agenda
- 1/22/03 Stewardship Committee Meeting Draft Agenda
- 12/9/02 Stewardship Committee Meeting Summary
- Fernald Closure CAB Mission
- Accelerated Waste Retrieval Project Roundtable Summary
- Draft Policy Guidance on Cleanup Driven by Risk Based End States
- DOE Initiation of Field Support for the Risk-based Cleanup Project Memo
- DOE Risk-based End States Self-Assessment
- DOE Cleanup Driven by Risk Based End States Policy
- DOE Development of Risk-based End State Visions
- Articles & News Clippings

### FOR FURTHER INFORMATION

Please contact Doug Sarno or David Bidwell at The Perspectives Group  
Phone: 513-648-6478 or 703-837-9269 Fax: 513-648-4141 or 703-837-9662  
E-Mail: [djsarno@theperspectivesgroup.com](mailto:djsarno@theperspectivesgroup.com) or [dbidwell@theperspectivesgroup.com](mailto:dbidwell@theperspectivesgroup.com)  
[www.fernaldcab.org](http://www.fernaldcab.org)



# FCAB BOARD MEMBER MEETING

Crosby Township Senior Center, 8910 Willey Road

Wednesday, January 22, 2003

## DRAFT AGENDA

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5:30 p.m.	Dinner
6:00 p.m.	Call to Order
6:00 – 6:30 p.m.	Chair's Remarks and Ex Officio Announcements <ul style="list-style-type: none"> <li>o Adding Fluor as Ex Officio</li> <li>o STCG disbanded</li> <li>o Overview of issues</li> </ul>
6:30 – 6:45 p.m.	Finalize Closure CAB Mission Statement
6:45 – 7:30 p.m.	Silos Update and Feedback from Roundtable
7:30 – 7:45 p.m.	Discussion of DOE Risk-based End State Policy
7:45 – 8:15 p.m.	Comments on Fernald Stewardship Management Plan
8:15 – 8:45 p.m.	Planning for Stewardship and Future Site Amenities
8:45 – 9:00 p.m.	Public Comment
9:00 p.m.	Adjourn



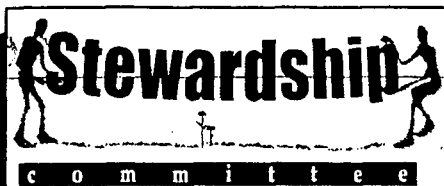
# STEWARDSHIP COMMITTEE MEETING T-1

Tuesday, January 21, 2003

## DRAFT AGENDA

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- 6:30 p.m.      Opening Remarks and Updates
- 6:45 p.m.      Comments on Comprehensive Stewardship Plan
- Review and Approve Comments
  - Next Steps
- 7:00 p.m.      Natural Resource Injury Settlement
- Status Report
  - Review and Approve Letter Urging Settlement
- 7:15 p.m.      Plan to Publicize Feasibility Study Report
- Review Cover Letters
  - Review Distribution List
- 7:30 p.m.      Next Steps on MUEF Feasibility Study
- 8:00 p.m.      Adjourn



## MEETING SUMMARY

**Date:** December 9, 2002

**Topics:**

- Revised draft of the Fernald Comprehensive Stewardship Plan
- Status of Natural Resource Damage Settlement
- Next steps for the Stewardship Committee

**Attendees:**

**Fernald Citizens Advisory Board**

Jim Bierer  
Marvin Clawson  
Pam Dunn  
Steve DePoe

**FRESH**

Edwa Yocum

**The Perspectives Group**

Doug Sarno  
David Bidwell

**U.S. Department of Energy**

Ed Skintik  
Gary Stegner

**Ohio Environmental Protection Agency**

Tom Schneider

**Fluor Fernald**

Joe Shomaker  
Rick Strobl  
Jeff Wagner  
Sue Walpole  
Eric Woods  
Pete Yerace

**Others**

Jim Innis

## Revised Draft of the Fernald Comprehensive Stewardship Plan

Doug Sarno opened the meeting and reviewed the agenda. He explained that the main purpose of this Stewardship Committee meeting was to review the draft Comprehensive Stewardship Plan for the site, which was recently revised based on a meeting between DOE Fernald and Dave Geiser, DOE Office of Long-Term Stewardship.

Gary Stegner reported that he and Steve McCracken met with Dave Geiser on November 20 to review a draft of the Comprehensive Stewardship Plan. During this meeting, Gary and Steve explained that stakeholders have driven stewardship planning at Fernald. Geiser stated that elements in the stewardship plan should be limited to measures that support the remedy in the site's Records of Decision. Gary reported some of the specific comments that Geiser made during this meeting:

- Current DOE policy would not support funding for the proposed multi-use education facility. It would support a utilitarian facility for managing stewardship records. The Interpretive Center recently opened at Weldon Spring was an initiative of a past administration, and DOE Headquarters does not consider it to be a precedent for other closure sites. If other funding opportunities are identified by the site, DOE could provide the land on which to build a facility.
- DOE Headquarters is not opposed to the Native American reburials, but Geiser wanted to learn more about this and DOE's responsibilities.
- DOE will not provide funding for State oversight, but will fund States commiserate with their role in long-term stewardship. Gary was not certain what this would mean at Fernald.
- Public access to site records and information has not been fully addressed by DOE Environmental Management. This may be an issue on which the public could have significant impact. Jessie Roberson recently declined an offer by the DOE Chief Information Officer to help EM address this issue.
- A Federal presence at the Fernald site past 2007 is not anticipated. Contractors, managed by the Grand Junction Office, could have a presence at the site.

Gary stated that Fernald site staff supports the trails and education facility, as outlined in the Public Use Master Plan, but at this time, DOE Headquarters will not commit financial support for public-use amenities. Gary stated that this does not reflect a change in DOE policy, but it does clarify the position of Headquarters. The Comprehensive Stewardship Plan, which must be submitted to DOE Headquarters by the end of January 2003, has been revised to reflect this. Gary stated that he and Steve believe that financial support for the construction of public-use amenities at the site would come from settlement of the Natural Resource Damages claim or through legislative action.

The revisions to the Comprehensive Stewardship Plan and Gary's report prompted substantial discussions among the members of the Stewardship Committee. Key points discussed are listed below:

- Committee members expressed frustration that the community agreed to a balanced approach for remediation of the Fernald site, which resulted in construction of the on-site disposal facility and use of less-protective cleanup levels, but DOE will not support the stakeholder vision for the future use of the site.
- Public education and access to information will support the remedy at the site. Institutional controls will not be effective without sustained community awareness. An informed public is critical to continued protection of human health and the environment.
- Remediation responsibilities (e.g., treatment of groundwater) will remain after 2007, which will require a continued presence by DOE.
- DOE's current approach to long-term stewardship may require a revision to the Environmental Assessment for the site.
- The Office of Long-Term Stewardship will be transferred from Environmental Management to the Office of Worker and Community Transition in September 2003. This could benefit the community, because this office more attuned to meeting community needs.

- Construction of a multi-use education facility at the Fernald site may require support from legislators. The community must convince legislators of the importance of public access to information and educational outreach.
- Because the nation has spent more than four billion dollars to clean up the Fernald site, DOE should be willing to spend a few million dollars to make the site useful to the community.
- DOE may have a legal obligation to fund continued State oversight of the site during long-term stewardship.
- The Records of Decision for Fernald do not provide adequate detail regarding long-term stewardship requirements or outline a sufficient regulatory progress for solidifying DOE stewardship commitments. The Comprehensive Stewardship Plan is not an enforceable document.

### Status of Natural Resources Damage Settlement

The group briefly discussed the status of the Natural Resources Damage Settlement between DOE and the State of the Ohio. The revised Comprehensive Stewardship Plan emphasizes the settlement of this suit as a potential funding base for the construction of public-use amenities and the maintenance of ecological restoration projects. The group discussed the need to develop cost estimates for these projects, which could help guide the final amount of the settlement.

Pete Yerace explained that the main obstacle to reaching settlement is determining the length of time for which DOE will be held accountable for ecological restoration projects. Gary suggested that the FCAB assume the role of moderator in this dispute, with the intent of bringing the right people to the table and seek an agreement. He stated that the FCAB has been successful in the past at framing issues and working towards consensus. Graham Mitchell suggested that the FCAB submit a letter to all relevant parties urging settlement of the suit.

### Next Steps for the Stewardship Committee

Doug reviewed the next steps for the Stewardship Committee: 1) produce and distribute a letter urging settlement of the Natural Resources Damage claim, 2) provide comments on the Comprehensive Stewardship Plan, and 3) publicize the key messages from the feasibility study report, *Telling the Story of Fernald*.

The letter regarding the Natural Resource Damage claim should outline the Stewardship Committee's concerns and explain that settlement is needed to provide clarity for planning. The group briefly discussed the appropriate recipients of the letter at DOE, Ohio EPA, the Ohio Attorney General office, and U.S. Fish and Wildlife Service. Doug will draft a letter and send it to the Stewardship Committee members for their review.

Individual comments on the draft Comprehensive Stewardship Plan should be submitted to Doug by Friday, January 3. Doug will assemble the comments and submit them to the site, so the plan can be revised accordingly before it is submitted to DOE Headquarters. A copy of the plan will be made available to the full FCAB, so that everyone can contribute comments.

It is important that key messages from the feasibility study report be provided to legislators, DOE Environmental Management, DOE Office of Worker and Community Transition, and other interested parties. A cover letter for the report should bolster the arguments that providing access to information and outreach to the community are critical to successful long-term stewardship and make good economic sense. The letter should also state that the community believes its cooperation with the remediation approach at Fernald was part of a good-faith agreement with DOE on the long-term stewardship and future use of the site.

**Other Issues**

Doug announced that a recent issue of an environmental remediation journal, *Radwaste Solutions*, featured an article on the ecological restoration projects at Fernald. A copy of this article was provided in a recent FCAB mailing.

Tom Schneider explained that the ITRC recently surveyed state regulators on issues related to long-term stewardship at DOE sites. Because the results of this survey were well received, the group is now asking individual stakeholders to fill out the survey. The survey is available on line. Tom will send more information and a link to the on-line survey to the FCAB.

Jim Innis stated that a storage facility for historical artifacts, photos, and documents must be provided before site closure. Steve DePoe suggested that this could be the role of a nonprofit organization.

The meeting was adjourned at 8:30 p.m.



## FERNALD CLOSURE CAB MISSION

DRAFT 12/03/02

In order to ensure that the Fernald Environmental Management Project site is completed in keeping with the spirit of community input and dialogue, the Fernald Citizens Advisory Board is seeking to create a strong presence at the site through closure.

The mission of the Fernald Citizens Advisory Board as the Fernald Environmental Management Project nears closure is to provide advice to DOE as it successfully meets its cleanup obligations and to provide guidance on how to prepare for long-term stewardship of the site. The FCAB strongly supports Community-Based Stewardship, an approach to long-term stewardship that actively engages the community in ongoing management of the site.

The FCAB does not intend disbanding on a particular date, but rather will use the following criteria to judge the completion of this mission:

- Cleanup decisions have been properly implemented and post-closure reports, risk-assessments, and certifications demonstrate that agreed upon cleanup levels have been met.
- A long-term funding source has been identified for long-term stewardship and adequate funding has been ensured.
- Site steward(s) have been selected and a process is in place to ensure a successful transition from cleanup to stewardship.
- A process is in place to ensure the complete and timely reporting of monitoring data for environmental conditions, ecological restoration, and site remedies and controls.
- Site records are being managed according to regulation, and a clear process is in place for the public to identify and obtain copies of site records.
- A mechanism, process, or facility is in place to ensure that the public can obtain the information it needs during long-term stewardship of the site.
- A mechanism or process is in place to ensure that there will be continued outreach to the community regarding conditions at the site and information resources that are available.
- A process and funding are in place to ensure the completion of an on-site education facility at Fernald.
- A process is in place to ensure meaningful public participation in ongoing stewardship decisions.
- All outstanding FCAB recommendations have been satisfactorily addressed.





# Accelerated Waste Retrieval Project Roundtable Summary

December 10, 2002

6:30 - 8:45 p.m.

Conference Room B-10

<b>Attendees:</b>	Jim Bierer Marvin Clawson Lisa Crawford Steve DePoe Pam Dunn Jenny Hamilton	Gene Jablonowski Tom Wagner Gene Willeke Edwa Yokum Vicky Dastillung
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The meeting was also attended by the Critical Analysis Team, members of the Silos Project Team, and other representatives from DOE, Fluor Fernald, and The Perspectives Group.

## Project Overview

Dennis Carr provided an overview of the Accelerated Waste Retrieval (AWR) project. The project has four objectives:

- Remove K-65 waste from Silos 1 and 2 and transfer it to secure, temporary storage
- Remove radon gas from Silos 1 and 2 headspace
- Transfer stored waste to final treatment
- Safely shut down AWR facilities

The AWR consists of four main components: Radon Control System, Transfer Tank Area, silo bridge and waste removal system, and tank waste retrieval system. With help from project staff, Dennis presented in-depth information on each component of the AWR and on the processes for which those components will be used.

A comprehensive handout describing the project and illustrating its components was distributed to all roundtable attendees. Attendees were encouraged to ask questions throughout the presentations.

## Radon Control System

The Radon Control System (RCS) will draw radon gas from the headspaces in Silos 1 and 2 and treat it. The system will operate during construction activities to reduce radon levels above the Silos' domes, during waste removal and transfer to holding tanks, and during the transfer of wastes from the holding tanks to treatment.

The RCS is run by fans drawing air from the Silos and through a series of treatment mechanisms. First, the air is run through a roughing filter, which uses moisture to capture particulates. Then, the air passes through a chiller and desiccant dryer. Moisture captured by the chiller and dryer will be contained and held for thirty days to allow the radon to decay. The cool, dry air then runs through carbon filter beds, which trap the radon and hold it while it decays. Before being sent through an exhaust stack, the air will pass through HEPA filters. Emissions will be monitored at the stack and through a series of environmental monitoring stations.

Dennis reported that a "hot test" of this system, run earlier in the month of December, went smoothly and successfully reduced radon levels in the Silos to ten millirems per hour. Dennis credited the success of this test to the intensive readiness program that involved teams from Fluor Fernald, DOE, and the Nuclear Safety Board. The Critical Analysis Team was not involved in the readiness program, but Steve McCracken stated that the team could be involved in future phases of the project.

The Critical Analysis Team suggested that another hot test be conducted prior to construction activities at the silos. The roundtable attendees agreed that this was a good idea. They also asked that residents living near the site fence line be contacted prior to operation of the RCS and other Silos Project activities.

### **Waste Retrieval System**

The K-65 wastes in Silos 1 and 2 will be removed using a sluice and pump system. The system will use remotely operated, high-powered water nozzles to create a slurry and direct it towards a central pump. One of the holding tanks will be filled one-quarter full and serve as the water source for sluicing. Bridges constructed over the dome of both silos will support the system. The slurry will be pumped to four holding tanks. According to the project team, the pumps were selected for this project based on their effectiveness and reliability. Dennis showed a videotape of a "cold test" of this system that was conducted by Jacobs Engineering in Oak Ridge, Tennessee. As waste settles out of the slurry in the holding tanks, the water will be reused, creating a closed system.

The pump system will be unable to remove all wastes from the bottom of the Silos. The remaining wastes are called "heels." Dennis reported that a team comprised of Fluor Fernald, Jacobs Engineering, Batelle, and DOE will begin meeting in January to develop strategies for heel removal.

Dennis also reported that the earthen berms around Silos 1 and 2 will not be excavated prior to waste removal. Structural analyses indicated that the silos walls will not collapse during operation of the project. Analyses have also shown that the silo domes are also structurally sound. The plywood caps that were placed on the domes to redistribute the weight of snow will be removed to allow construction of the bridge structures, but as yet, there are no definite plans for how they will be removed. Dennis promised to provide a summary of the structural analyses to Lisa Crawford. The group briefly discussed contingency plans in case of a dome collapse at any of the silos.

### **AWR Project Interface with Treatment**

Materials in the storage tanks will be removed and transferred to the treatment facility using the same sluice and pump approach used to remove materials from the silos. Dennis suggested that another roundtable be held to discuss the treatment process, once final plans are in place.

### **Operational Environmental Monitoring**

Dennis explained that four types of monitoring would be employed at the AWR Project: environmental monitoring, stack monitoring, process monitoring, and personnel monitoring. Dennis reviewed a map of environmental monitoring stations at the Fernald site boundary and within the Silos Project area. Monitors on the RCS exhaust stack will check radon and particulate levels. Process monitoring will include several measures throughout the AWR processes, including pressure, temperature, relative humidity, slurry density, and mass flow. While most of the AWR activities will be controlled remotely, workers in the area will also be monitored. All operations in the AWR buildings will require full protective gear.

The roundtable adjourned at 8:45 p.m.



## Draft Policy Guidance on Cleanup Driven by Risk Based End States

### Background

This policy and guidance grew from the work of one of the DOE Corporate Project Teams formed in conjunction with the release of the Top-to-Bottom Review. Comments on these two documents are due to DOE by January 31, 2002.

### Draft Policy

"Each site currently undergoing clean up shall formulate a risk-based end state vision in consultation with regulators, stakeholders, and Tribal Nations. That vision shall be accompanied by a strategy to integrate and relate that vision to the regulatory environment in which they are operating. Sites should set the risk-based end-state vision, then redesign their clean up activities to achieve that vision."

According to the draft, the purpose of this policy is, "to ensure the Department focuses [its] cleanup efforts on achieving clearly defined, risk-based end states."

Implementation of this policy would require all DOE cleanup sites to focus remediation efforts on reaching a desired end state for the site, rather than piecemeal milestones. The policy notes that this may require renegotiation of Federal Facility Agreements. The policy sets out seven principles that must be considered in developing these end states:

- DOE will comply with existing environmental laws and regulations.
- End states must be based on an integrated, site-wide perspective (which includes surrounding lands).
- End states must be focused on intended future land use and the risks associated with that use.
- Interim risks to the public, workers, ecosystem, and the environment must also be considered in selecting actions to reach these end states.
- Effective, transparent institutional controls and long-term monitoring and surveillance methods should be included in considerations of risk.
- Stakeholders and regulators must be consulted.
- End states must address how impacts of future risks will be addressed and include contingency plans for changing conditions.

### Draft Guidance for the Development of Risk-based End State Visions

The guidance sets a goal of June 1, 2003 for sites to provide a draft End State Vision to regulators and stakeholders for review and comment. Endorsement of this vision by regulators and stakeholders is anticipated on September 1, 2003. Sites must align cleanup baselines and Performance Management Plans (PMPs) to these End State Visions by March 31, 2004.

The guidance briefly discusses nine considerations for sites developing a risk-based end state vision:

1. Life-cycle cost must be considered.
2. The "end state" begins when a steady state in the remedy is achieved.
3. A focus on site restoration, property revitalization and reuse.
4. Minimize the creation of new waste disposal sites.
5. Use a risk-based site conceptual model that includes land use considerations.
6. A regulatory strategy that allows completion of the cleanup mission.
7. Use decision analysis and logic tools that are relevant and appropriate.
8. Establish an integrated soil and groundwater compliance strategy.
9. Integrate monitoring and surveillance plans with the end state vision.

The guidance also describes the scope and content of the document that must be produced by the site. In short, "The vision document describes the end state of the site when the risk-based end state cleanup is completed." It is not a detailed plan or regulatory document, and should be only ten to forty pages in length. It should contain discussions on the hazards that remain at the site, measures taken to control those hazards, expected end use of the site, and graphic depictions of what the site's end-state should look like. It should also contain a "discussion of potential issues associated with achieving the discussed end states." The guidance also includes an outline for the document.

#### **Key Questions**

Key questions regarding this policy and guidance include:

- How would the implementation of this policy impact the current approach to remediation at Fernald? Would any agreements with regulators require renegotiation?
- Does this policy impact DOE's commitment to reach envisioned end uses, or only desired risk levels based on that envisioned future use?
- What will constitute endorsement of the end-state vision by Fernald stakeholders and regulators?

United States Government

Department of Energy

# memorandum

DATE: December 16, 2002

REPLY TO  
ATTN OF: EM-51 (Geiser: 6-9280)

SUBJECT: Initiation of Field Support for the Risk-based Cleanup Project

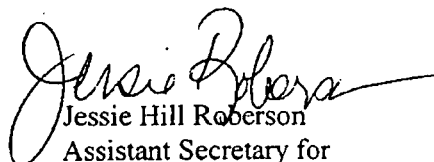
TO: Distribution

This memorandum initiates a series of field actions needed to support the Cleanup Program driven by Risk-based End States Project. Specifically this memorandum directs the field to take three actions.

The first action is to review and comment on two documents: the draft Departmental policy titled *Cleanup driven by Risk-based End States*; and the draft guidance titled *Development of Risk-based End States* (Attachments A and B). It is my belief that this policy and guidance, if correctly implemented, will have a profound impact on the approach the Department uses to conduct cleanup. The policy and guidance are being circulated, in parallel, to national intergovernmental groups and federal agencies for review and comment. Field Offices are encouraged to share these draft documents with local stakeholders, regulators, and Tribal Nations. Comments are due January 31, 2003.

The second action is to provide two copies of the site documents that are most relevant to the completion of site cleanup and the achievement of site end states. This request is aimed specifically at those documents that best describe the site conditions upon completion of the Department's cleanup efforts. Documents should be sent by January 8, 2003, via overnight mail to: Mr. David Geiser, Director, Office of Long Term Stewardship, EM-51/Forrestal Building, U.S. Department of Energy, 1000 Independence Avenue., S.W., Washington DC 20585

The third action is to complete a self-assessment (see Attachment C) related to risk-based end states. Site assessments are due January 8, 2003, and should be sent via electronic mail to david.geiser@em.doe.gov. Please contact Mr. Geiser with a point-of-contact to serve as your representative to this project no later than December 18, 2002. Questions regarding this memorandum should be directed to Mr. David Geiser, Director, Office of Long-Term Stewardship, at (202) 586-9280.

  
Jessie Hill Roberson  
Assistant Secretary for  
Environmental Management

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## Pre-Decisional Work in Progress

### Risk-based End States Self-Assessment

The following questionnaire was developed for three purposes:

1. Gain an understanding of the current status of site efforts to develop and achieve risk-based end states.
2. Gather input to improve the Department's draft corporate policy and guidance on developing risk-based end state visions.
3. Provide information on what tools need to be developed to implement the policy and guidance.

The information you provide in this questionnaire will be considered pre-decisional and will not be provided for general public release under the Freedom of Information Act. Please complete the questionnaire by January 8, 2003, and forward via electronic mail to david.geiser@em.doe.gov. Questions regarding this request should be directed to Mr. David Geiser, Director, Office of Long-Term Stewardship at (202) 586-9280.

Since "risk" and "end state vision" can mean different things, the following definitions from the draft DOE Guidance Document, Development of Risk-Based End State Visions, November 29, 2002, are provided:

**Risk** – "...the term means the risk to human health and the environment after remediation is complete. There are three (3) components that must be considered in the analysis of end state risk: (1) expected land use, (2) remaining hazards, and (3) receptors."

**End State Vision** – "An end-state vision is the agreed-to vision for land use at the end of the EM mission and beyond. Factors are site specific for developing a vision. Factors can depend on whether there is any ongoing mission for the site and what the current land use is for the surrounding area, including property that the Department may continue to own (e.g., at a continuing mission site), property that is managed by another Federal agency (e.g., U.S. Fish & Wildlife Service), and property that is privately-owned and which borders the DOE property that is undergoing cleanup under the EM Program."

## Pre-Decisional Work in Progress

<b>Site Background Information</b>	
1.	Site name:
2.	Name, phone number, and title of person completing questionnaire:
3.	Per the new EM-1 terminology for Program Accounts, is your site a 2006 Accelerated Completion site, a 2012 Accelerated Completion site, or a 2035 Accelerated completion site, or other?
4.	Is your site an EM closure site or a continuing mission site (e.g. the site continues to have an operational mission after the EM mission has been completed)?
5.	What is the primary legal/regulatory driver for cleanup of your site? (e.g. CERCLA, RCRA, AEA, state law, or other)?
6.	Does the primary legal/regulatory driver differ from one area of your site to another (please explain)?
7.	Which policies, authorities and/or guidance have played a key role in the development of cleanup standards or end-state planning to date?
<b>Status of Land Use Planning, End State Documents, and Regulatory Decisions</b>	
8.	If the site has an ongoing mission for the Department (i.e., national security, science, or energy), briefly describe that mission and the impact on the EM cleanup end state and the projected future use of the site.
9.	List the key documents (regulatory or other) that describe the end state when EM cleanup is to be completed and the projected future land use for the site. Note: per the memorandum forwarding this questionnaire, these documents should be provided to DOE/HQ. Briefly describe the end state and projected future land use for the site (this can be accomplished by attaching the Executive Summary of an existing document).
10.	List the key documents (regulatory or other) that describe the projected land use for the areas that are adjacent to and/or near the site. For example, the land use plans or regulatory documents for federal, state, local, tribal government and/or private land that would have an impact on the end state vision and/or projected land use for DOE property (or property where DOE has an environmental liability). Briefly describe the planned land use for the surrounding areas.
11.	Describe the relationship between and/or any inconsistencies between the planned land use for DOE land and that for the surrounding areas.



### Pre-Decisional Work in Progress

12.	Does your site have a site-wide conceptual model or other site-wide approach that identifies likely sources, pathways, and receptors? (If this information is available graphically in a concise presentation, please provide.) Does the site-wide conceptual model or approach use or consider the same end state as the land use plan?
13.	Briefly describe the disposal cell(s), capped areas or other remedies that will have a significant impact on, or drive, the end state and/or projected future land use.
14.	Briefly describe the key contaminants of concern in the soil, surface water, and ground water that have a significant impact on, or drive, the end state and/or projected future land use.
15.	Describe the level of involvement by regulators, stakeholders, local government, and Tribal Nations in the development of the conceptual site model, land use plan, cleanup standards, and/or end state vision.
<b>Risk Based Approaches</b>	
16.	If you were free to define site cleanup and the site end state definition on a risk basis alone, in what ways would site cleanup approaches, land use definition, and release site geography change?
17.	Is the primary receptor of concern for your end-state determination human or ecological? If human health is the primary risk consideration are the receptors of concern on-site workers, visitors (e.g. recreational, educational), intruders, off-site neighbors, adjacent workers or others?
18.	Is risk balancing, or are relative risks to different receptors (including risks to workers or ecological receptors during remediation), ever/sometimes/always a key decision factor in selecting/revising remedial goals or approaches or in end state definition?
19.	Are risks always calculated on a release site-by-release site basis, other geographical region or definition (i.e. watershed), or a combination? Briefly describe your efforts, if any, to evaluate risk on a "composite" or site-wide basis. How does this effort compare to risk assessments you have conducted on a release site or operable unit basis? Are the cleanup standards or criteria used for individual release sites or operable units consistent with the planned end use or land use plan?
20.	Are your current plans for the post-cleanup monitoring of worker, site or potential contaminant movement, or institutional controls explicitly shaped by risk objectives/considerations? If not, how are they determined? How well are those objectives and/or the costs of these mechanisms understood by the site? Others?
21.	Do you now or do you plan to include resources for the evaluation of risk and or of life-cycle risks and costs in your future budget or human resources planning?

**Pre-Decisional Work in Progress**

<b>Barriers/Issues</b>	
22	What are the barriers that would have to be overcome for the site to have a risk based cleanup program utilizing the land use plan or end state goals?
23	If new information about risk were to emerge in further site characterization or during remedial activity, would matching changes in remedial approach end state definition be impossible/ negotiable/ readily achieved?
24	What added information or support is/would be beneficial to facilitate accomplishing a risk-based end state vision (e.g. computer modeling tools information,)?

Thank you for providing this information on such short notice. Please note that David Geiser, or a member of his Corporate Team, will be contacting the site to arrange for a conference call or videoconference during the week of January 13, 2003, to clarify any questions regarding your response.

3 8 8 4

4 6 8 6

# U.S. Department of Energy

## POLICY

Washington, D.C.

DRAFT  
DOE P XXX.X

Approved: X-XX-03

**SUBJECT: CLEANUP DRIVEN BY RISK BASED END STATES**

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**PURPOSE AND SCOPE:** The purpose of this policy is to ensure that the Department focuses our cleanup efforts on achieving clearly defined, risk-based end states. The Department of Energy is striving to improve the effectiveness of its cleanup program. The single most significant change that we can make is to focus the program on goals that are clearly articulated and technically defensible and achievable. Those goals must be grounded in where we want to be at the end of the cleanup effort, and not on interim milestones or conditions that are continually subject to change. With this approach we can resolutely pursue environmental protectiveness through cleanup.

When the drive to achieve risk-based end states characterizes the Department's site assessment, remedy selection and actions to assure long-term protectiveness, the cleanup program will complete its work quicker, safer, and more efficiently. It is intended that this approach apply to all sites currently undergoing clean up. The approach may cause a re-evaluation of, and changes to, current regulatory agreements/documents (such as Federal Facility Agreements) and compliance agreements. Each site will have to update site cleanup baselines and Performance Management Plans to reflect the risk-based end state vision of the site. The resulting changes will enable the Department to accelerate clean up, and achieve conditions that enable sustained protection of human health and the environment.

**BACKGROUND:** The Department's *Top-to-Bottom Review* (February, 2002) found that the nation's twelve year investment in the cleanup program had achieved little real risk reduction. The *Review* noted that the Department's cleanup program has been focused on, and driven by, achieving compliance with regulatory requirements in an approach that can best be described as piece meal and iterative. In addition, current regulatory requirements can be inconsistent, contradictory and/or duplicative.

The *Review* also noted that the Department, its contractors, its regulators and other stakeholders had rightly sought concurrence on remedial action through the use of Federal Facility Agreements. However, those regulatory agreements and the associated compliance milestones were generally established prior to an adequate understanding of the nature of the risks and hazards at the site. Thus, initial and subsequent agreements contained cleanup goals that were typically based on interim milestones and rarely articulated or pursued action that attained safe cleanup in a business-like and efficient manner. In addition, the Department's cleanup decisions or approaches were not adequately integrated with decisions about the future use of the facilities and property.

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**DISTRIBUTION:**  
All Departmental Elements

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**INITIATED BY:**  
Office of Environmental Management

Over the past decade, the Department, its regulators and stakeholders, have gained a better understanding of the future use of the facilities and property currently under cleanup. Even broader, the environmental industry and its regulators have matured towards a better science based understanding of contaminant fate and transport and the real risks posed by contaminants. The result is that acceptable cleanup strategies are evolving with goals for cleanup and contaminant containment and there is better understanding and acceptance of what DOE can reasonably achieve.

Cleanup targets have changed as more information about risk assessment and a better understanding of the site hazards has evolved. This same learning curve has caused the U.S. Environmental Protection Agency to initiate policy changes that are consistent with the new information. These include Risk-Based Corrective Action, Brownfields, and the One Cleanup Program Initiative. Like those policy changes and initiatives, this policy is an attempt to improve the efficiency of the cleanup program while clearly committing to close the sites in a manner that is protective.

In summary a lack of effective cleanup and lack of trust has been generated by diverse but applicable regulatory regimes, the absence of a clearly articulated corporate approach by DOE to its cleanup mission, the failure to adequately link remedies with future land use, and insufficient methods to assure the performance of remedies. A focused and rigorous effort by the Department, its regulators and stakeholders, is needed to clearly define and articulate end states based on risk.

**POLICY:** Each site currently undergoing clean up shall formulate a risk-based end state vision in consultation with regulators, stakeholders, and Tribal Nations. That vision shall be accompanied by a strategy to integrate and relate that vision to the regulatory environment in which they are operating. Sites should set the risk-based end-state vision, then redesign their clean up activities to achieve that vision. The purpose is to "do it right and completely the first time," rather than establishing interim steps to un-defined end states or by designing remedies that either don't meet the goal or unnecessarily exceed it.

Efforts to develop and achieve risk-based end states must consider the following requirements:

- The Department will comply with the requirements of the nation's environmental laws and regulations. However, the requirement to develop and achieve risk-based end states will drive the Department's compliance strategy.
- End states, including the selected remedies, must be based on an integrated site-wide perspective (including the current and future use of surrounding land), rather than on isolated operable units or release sites.
- End states must be focused on protecting the relevant receptors based on the intended land use. Sites must document the final anticipated risk-based condition that drive a cleanup decision or activity.
- Sites must consider the interim risks to the public, workers, and the environment in the selection of actions required to achieve end states. Ecosystem health should not be

endangered nor should workers be asked to conduct cleanup activities that result in little or no reduction in risk to the public or the environment.

- Where contaminants are expected to persist but can be isolated, risk concepts should include effective and transparent institutional controls to maintain isolation. Long term monitoring and surveillance methods must be designed to assure that the contaminants remain sequestered and human health and the environment are protected.
- Stakeholders and regulators must be consulted in the actions needed to develop and achieve risk-based end states.
- End states must address how we are to manage the impacts of future risks and vulnerabilities, including the creation of contingency plans in the event that site conditions change after clean up is completed.

**IMPLEMENTATION:** This policy requires the Department to re-evaluate our cleanup activities. We must ensure that our actions are both realistic and appropriate for the end state conditions we are striving to achieve. Sites are expected to use risk-based principles to reformulate the cleanup strategy for their sites and to seek the active concurrence and support of regulators and public who will benefit from earlier risk reduction and completion. In some cases, this approach may cause a re-evaluation of, and changes to, current regulatory agreements (such as Federal Facility Agreements) by working with regulators and public.

The Department's sites are at different stages in their cleanup efforts and are applying a variety of approaches to developing and achieving risk-based goals. Consequently, defining or redefining the end state for some sites may be difficult. The Department will issue guidance that describes how a risk-based, end state vision should be constructed and what it should contain. Sites will need to assess their current approach and the level of compliance with this policy and the guidance in a rigorous manner. That assessment will serve as the initial step for a dialogue with the regulators and stakeholders on setting and utilizing risk-based end states for cleanup decisions.

The Department will develop a corporate strategy to ensure implementation of this policy. The corporate strategy will describe how to revise site baselines and the associated Performance Management Plans using the site-specific risk-based end state visions. Where past regulatory agreements conflict with risk-based end state goals, sites are expected to develop a strategy to renegotiate these agreements and/or milestones. Finally, the Department will identify barriers to developing and achieving end-state visions and develop tools to address them.

**U.S. Department of Energy  
Guidance Document**

**Development of  
Risk-based  
End State Visions**

**X-XX-03**

Predecisional Draft: *Guidance for the development of Risk-based End States*, November 29, 2002

## Executive Summary

This guidance supports the implementation of DOE Policy XXX, *Cleanup Driven by Risk-based End States* dated x-xx-03. The Department's intent is to "do it right the first time." The Department must correct a cleanup process based on multiple interim steps that lead to undefined end states and cleanup remedies that either don't meet the goal, or unnecessarily exceed it.

This guidance recognizes that implementation of Policy XXX may need to occur in phases. The Department recognizes that sites are subject to different time-constraints and/or regulatory pressures. These constraints include commitments embedded in existing site-specific regulatory agreements, that may affect the time frames by which each site can develop, and implement, risk-based end state visions.

This guidance contains:

- a description of roles and responsibilities;
- schedule requirements
- the guiding principles as provided in the draft policy;
- strategic considerations;
- a set of considerations, or process steps;
- a description of the scope and content of a risk-based, end state; and,
- [the final guidance will include] a discussion of tools that are currently available to facilitate the definition of risk-based end states for each site.

Following the development of risk-based end state visions, sites will need to revise their baselines and Performance Management Plans (PMP) to accurately reflect the activities that will ensure achievement of the site vision.

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## Guidance for the Development of Risk-based End State Visions

### 1.0 Introduction

DOE Policy XXX states that cleanup at a site should be driven by a risk-based end state vision. It is the Department's goal to have the site end state vision supported by the site regulators and stakeholders within the time frames outlined in this guidance. The Department recognizes that Closure Sites have a more time-critical need to define and achieve these end state visions. This document provides guidance on what a vision statement is, and how it should guide risk-based cleanup decisions. The U. S. Environmental Protection Agency and/or States under CERCLA and/or RCRA regulate site cleanup programs. Site vision statements should be supported by the regulatory community, the local community, Tribal Nations, and affected stakeholders.

An end-state vision is the agreed-to vision for land use at the end of cleanup. Factors affecting this vision include the Department's mission requirements for the site and the land use in the surrounding area. The land use includes property that the Department may continue to own (e.g., at a continuing mission site), property that is managed by another Federal agency (e.g., U.S. Fish & Wildlife Service), and property that is privately-owned and borders the DOE property undergoing cleanup.

The end state vision will allow the Department, its regulators and stakeholders to make decisions based on an end state for the cleanup. Knowing the end state will enable the site to know what is required to ensure adequate protection of human health and the environment for the intended land use. Sites may determine there is more than one land use for the property, as a whole. In such cases, it will be important to determine the boundaries of these land uses, so that points of compliance can be determined and that actions taken by the Department are protective of human health and the environment at those points of compliance.

It is important for sites to consistently apply the same definition of "risk" during the development of risk-based end state visions. For purposes of implementing Policy XXX and this guidance, the term means the risk to human health and the environment after remediation is complete. There are three primary components that must be considered in the analysis of end state risk: the expected land use, the remaining hazards, and the primary receptors.

### 2.0 Roles and Responsibilities

Assistant Secretary for Environmental Management (EM-1): Monitor site compliance with Policy # XXX and this guidance. Act as DOE Advocate of Policy # XXX and this guidance, including coordination with U.S. Environmental Protection Agency, national stakeholder groups, tribal nations, other Federal agencies, and other interested parties. Provide necessary resources to sites to implement Policy # XXX and this guidance.

Field Office Managers: Implement Policy # XXX and ensure that all sites under his/her purview follow the guiding principles, process requirements and schedules outlined in this guidance. Provide necessary resources to subsidiary sites to implement Policy #XXX and this guidance.

Site Managers: Implement Policy # XXX and follow the guiding principles and process requirements outlined in this guidance to define and achieve a risk-based end state vision, and meet all schedule requirements outlined in this guidance. Plan for and request the necessary resources to implement Policy # XXX and this guidance.

### 3.0 Schedule Requirements

Sites provide their draft End State Visions to regulators and stakeholders for review and comment by June 1, 2003.

Sites should receive endorsement of End State Visions from regulators and stakeholders by September 1, 2003.

Sites shall revise their cleanup baselines and associated Performance Management Plans (PMP) to be in alignment with their risk-based, end states by March 31, 2004.

### 4.0 Guiding Principles

As outlined in DOE Policy XXX, efforts to develop and achieve risk-based end states must be based on the following principles:

- The Department will comply with the requirements of the nation's environmental laws and regulations. However, the requirement to develop and achieve risk-based end states will drive the Department's compliance strategy.
- End states, including the selected remedies, must be based on an integrated site-wide perspective (including the current and future use of surrounding land), rather than on isolated operable units or release sites.
- End states must be focused on protecting the relevant receptors based on the intended land use. Sites must document the final anticipated risk-based condition that drive a cleanup decision or activity.
- Sites must consider the interim risks to the public, workers, and the environment in the selection of actions required to achieve risk-based, end states. Ecosystem health should not be endangered nor should workers be put at risk by requiring them to take actions that result in little or no reduction in risk to the public or the environment.
- Where contaminants are expected to persist but can be isolated, risk concepts should include effective and transparent institutional controls to maintain isolation. Long term monitoring and surveillance methods must be designed to assure that the contaminants remain sequestered and human health and the environment are protected.
- Stakeholders and regulators must be consulted in the actions needed to develop and achieve risk-based, end-states.

- End states must address how we are to manage the impacts of future risks and vulnerabilities, including the creation of contingency plans in the event that site conditions change after clean up is completed.

## 5.0 Strategic Considerations

The Department's strategy for implementing Policy # XXX and this guidance will depend on the stage that cleanup is in for each particular site. For sites that have not yet established future land use, or cleanup criteria suitable for that land use, discussions with the regulatory agencies should begin as soon as possible. For those sites that are further along in the process, for example, all the Records of Decisions and cleanup criteria have been negotiated and approved by the DOE, EPA, and State, more internal planning may need to be completed before the regulatory agencies or stakeholders are approached.

The steps in this DOE-internal planning should include:

1. An initial evaluation of what new cleanup criteria could be established that are based on a "pure" risk-based end state;
2. The cost savings resulting from any changes to cleanup criteria, renegotiation of regulatory agreements;
3. Legal options and pathways for any change;
4. Schedule constraints (for example, can such changes be made in a timely manner while still meeting legally-required milestones already agreed to?); and
5. The "climate" for changes, with the regulatory agencies, stakeholders, and Tribal governments, and a plan to successfully re-negotiate the original cleanup criteria.

If an internal plan is developed that considers the above points and demonstrates that significant benefits can be gained by the Department as well as the communities most affected by DOE's historical operations and ensuing EM cleanup, then the likelihood of successful implementation of Policy# XXX will be greatly increased.

Once a risk-based end state vision has been established, a strategy for reaching that end state can be created. Sites will need to assess if site conditions have been adequately characterized, in order to clearly define the end state goals. This characterization must include a validated site conceptual model that defines what data needs exist. The strategy will determine the extent of active remediation required, versus using barriers or contaminant containment efforts or other engineered and/or institutional controls.

The strategy also needs to meet all applicable regulatory requirements. At some sites, there may be more than one regulation driving the cleanup (e.g., CERCLA, RCRA, AEA, TSCA). At an NPL site, for example, Section 121(d) of CERCLA requires compliance with site-specific Applicable or Relevant and Appropriate Requirements (ARARs), unless the action qualifies under a limited list of ARAR waivers. NPL sites are encouraged to take advantage of the

waivers process in defining a risk-based end state. Other cleanup authorities may also have flexibility similar to the ARAR waiver process. Sites may also need to renegotiate Federal Facility Agreements or other regulatory agreements, in order to achieve the new end state.

Finally, consideration of the long-term cost of stewardship requirements for the end-state goals must be incorporated in the strategy. Sites should document the risk-based considerations driving the requirement for all cleanup activities.

## 6.0 End State Vision Considerations

Nine considerations to be discussed during the preparation of a site's risk-based end state vision.

### *1. Life-cycle cost must be considered.*

Each site must possess the ability to adequately characterize the problem, forecast remediation achievements, link these achievements to future use, and forecast the engineering and/or institutional controls needed to both secure the blocked pathway and to monitor performance of the remedy. "Trade-offs" between characterization, remediation, future monitoring and any institutional or engineered controls is a necessary part of end state definition and remedy design.

### *2. The "end state" begins when a steady state in the remedy is achieved.*

For the purposes of the end state vision document, the end state begins when the remedy is proven to be operating as designed. For example, the end state can be achieved once a ground water pump and treat system is operational. It does not mean that the final objective of the pump and treat system is attained and the system is dismantled.

### *3. A focus on site restoration, property revitalization and reuse.*

The use of a reasonable land use scenario in setting cleanup standards is expected. Land use considerations include: the continued DOE mission on site; transfer of land ownership to another Federal agency, State or Local government; and recreational use.

### *4. Minimize the creation of new waste disposal sites.*

If it is not technically feasible to clean a site to an unrestricted or recreational use standard, then the site should not design a remedy that involves the transfer of waste materials to an otherwise "clean" site. Transfer of waste materials to an existing waste disposal site is acceptable, however, the site should first consider whether it may be best to simply cap and leave wastes in-place, particularly if technological limitations prevent complete removal of all wastes.

### *5. Use a risk-based site conceptual model that includes land use considerations.*

The site conceptual model must take into consideration all sources of contamination, all release mechanisms (e.g., volatilization, leaching), all exposure points (e.g., air, groundwater), all exposure routes (e.g., inhalation, dermal contact), and all human receptors (e.g., site worker and

member of public) as well as environmental receptors (e.g., endangered species, ecologically significant biota) or other considerations (e.g., cultural resources, historically significant properties). During final development and acceptance of the end state vision, sites should consider the relevant pathways and receptors when analyzing risk to human health and the environment. The site conceptual model must also include a vision of the contamination footprint, after remediation is complete, as well as the proposed land use.

*6. A regulatory strategy that allows completion of the cleanup mission.*

The regulatory strategy must allow DOE to articulate when the end state begins and when the remedy is complete. The RCRA and CERCLA regulations clearly state which documents are enforceable, however, there may be unenforceable documents (e.g., plans) - that constitute an important element of the exit strategy.

*7. Use decision analysis and logic tools that are relevant and appropriate.*

Sites should conduct site-wide risk evaluations using, as appropriate, decision/risk analysis, visualization, and logic tools that promote understanding of alternative risk-based end states that protect human health and the environment. These evaluations should include, at a minimum, the following attributes: present and future hazards (e.g., surface and subsurface contamination footprints); institutional controls (e.g. land use); and credible pathways of exposure (i.e., exposure assessment). The evaluations should include groundwater and ecological considerations related to postulated end state activities. Sites should use these human health and environmental risk assessment tools in conjunction with broader "systems" evaluations, such as short-term worker and ecological exposure, as well as cost impacts, to compare the impacts and benefits of alternative end states.

*8. Establish an integrated soil and groundwater compliance strategy.*

The end state vision may consider a property transfer in its entirety, or the property may be divided for different land use scenarios. Depending on the situation, a single or multiple groundwater points of compliance may be established as a part of the cleanup strategy. In such cases, it is vital that the soil compliance strategy be considered in conjunction with the groundwater compliance strategy. Furthermore, contingency plans should be designed along with the integrated compliance strategy, in the event that future site conditions change unexpectedly.

*9. Integrate monitoring and surveillance plans with the end state vision.*

As a part of the long term management plan for cleanup sites, monitoring and surveillance plans must be designed to effectively support the end state vision. Stakeholders, regulators, local communities and future property owners must be well informed of any residual contaminant risks. Monitoring data accumulated in accordance with an agreed-to schedule gives all parties full disclosure of site conditions beyond just the cleanup activities.

## 7.0 Scope and Content

This section describes the scope and content of the document that contains the risk-based end state vision. First, it is important to clearly state what the vision document is not.

The vision document is not:

- a "plan", per se, and will not prescribe "how" to achieve the site-specific risk-based end states. The vision document describes the end state of the site when the risk-based end state cleanup is completed.
- a document to present every details of remaining hazards (every isotope), controls (e.g., location of every single well) or every facility in place. It needs to show a comprehensive end state picture but not necessary a detailed one.
- a budget or baseline document. Upon completion of the vision document, each site will be required to update site-specific baseline and/or Program Management Plan (PMP) to reflect the risk-based end state vision document.
- a regulatory document. Upon completion of the vision document, each site may be required to revisit current regulatory agreements/documents (such as Federal Facility Agreements) and compliance agreements. Each site will work with local regulators and stakeholders to update the regulatory and compliance agreements to reflect the risk-based end state vision of the site.

The vision document should:

- be consistent with the *Cleanup Driven by Risk-based End State* policy (dated March 30, 2003) and the contents of this guidance document (dated xx);
- contain discussions on the remaining hazards in terms of risks from the contaminants, risks to receptors, and measures undertaken to protect the environment and human health;
- contain maps, drawings, and other data points to communicate what the end state looks like. Any tools used to depict the end state must clearly articulate remaining contaminants, any protective measures undertaken, and remaining operating systems;
- contain discussion of land use on and around the site. It should contain discussion of expected use when cleanup is completed;
- 10-40 pages<sup>1</sup> in length depending on the complexity of the sites;

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<sup>1</sup> The length of document is provided only as a reference only. It is not a requirement.

December 16, 2002

Weapons Complex Monitor

Page 4

**"AT FERNALD ..... RADON CONTROL SYSTEMS INSTALLED AT WASTE SILOS"**

4686

**AT FERNALD ..... RADON CONTROL SYSTEM INSTALLED AT WASTE SILOS**

Fluor Fernald started up a new radon control system at the Fernald site last week designed to draw radon gas out of the headspace area in each of the site's K-65 silos and reduce the concentration of the gas by 95 percent so that nearly 9,000 cubic yards of radioactive waste can be removed. Once radon levels are in check, workers can transfer the waste from the concrete silos to the newly constructed 750,000-gallon steel tanks. The Radon Control System (RCS) stands about 40 yards from the earthen-bermed silos and fans within the RCS draw the radon-bearing air into the facility via a series of valves and piping connected to manways on top of the silos. The radon gas is removed by passing the air through filters containing activated carbon. Once the air has traveled through the carbon beds it passes through HEPA filters to remove any remaining particulate from the radon decay chain.

In June 2003 crews will begin installing waste retrieval equipment around Silos 1 and 2. The Silos Team plans to use water jets and slurry pumps to remove the clay-like waste from the silos and transfer it into four temporary storage tanks. The transfer system is scheduled for startup in spring 2004. From there, treatment plant operators will blend the waste with cement to produce loose concrete suitable for safe packaging and transportation off-site.

8.8344

November 25, 2002

Weapons Complex Monitor

Page 7

"At Fernald ..... Two Disposal Cells Complete"

4686

**AT FERNALD ..... TWO DISPOSAL CELLS COMPLETE**

The Dept. of Energy and Fluor Fernald have completed construction of two new disposal cells as part of a seven cell, three quarter mile long, on-site disposal facility. Heavy equipment operators began placing contaminated soil in one of the new 800-foot wide by 400-foot long cells Nov. 8 and on Nov. 19, the other new cell was also opened for placement. The 70-acre disposal facility, complete with a wastewater collection system, 5-foot thick earthen and synthetic liner and 8.75 -foot thick cover is designed to hold 2.5 million cubic yards of waste. Since December 1997 Fluor Fernald crews have placed soil and rubble into the facility at a rate of 200 truckloads per day. Today Cell

1 is completely full and covered. Cell 2 is also full and awaiting cover construction and Cell 3 is over 50 percent full.

When the Fernald cleanup is complete the On-Site Disposal Facility will encompass approximately 130 acres including a buffer area and will be protected by a 10-foot high fence. The Fernald Citizens Advisory Board, U.S. EPA, Ohio EPA and area stakeholders are currently working with DOE and Fluor Fernald to implement plans that would return the remaining 920 acres to its natural state with an undeveloped park.



680 November 20, 2002  
Cincinnati Business Courier  
Online Story

4686

"Two new disposal units opened at Fernald site"

## Two new disposal units opened at Fernald site

The Department of Energy and Fluor Fernald have finished construction on two more disposal cells to hold contaminated material from the former Fernald uranium processing plant.

The cells are part of a seven-cell, three-quarter-mile-long on-site disposal facility that will eventually hold 2.5 million cubic yards of waste from the cleanup at Fernald. So far, the first cell in the facility is completely full and covered, the second is full and waiting to be covered and a third is more than 50 percent full. Each cell is 800 feet wide by 400 feet long.

Fernald is located on 1,050 acres in Crosby Township, about 18 miles northwest of Cincinnati. During the Cold War, Fernald produced about 500 million pounds of uranium products for the U.S. weapons program, and the facility later created uranium fuel elements for nuclear reactors in Washington and South Carolina.

According to a news release, heavy equipment operators began placing contaminated material from the site in one of the new cells on Nov. 8. The other new cell has been opened for placement, but has not yet received any material.

The disposal facility encompasses 70 acres and has its own wastewater collection system a 5-foot-thick synthetic and earthen liner and a 8.75-foot-thick cover. The construction and loading of the facility is 40 percent complete, and it will be one of the last projects to be finished before the site is totally remediated in December 2006. About 920 acres of the site are expected to be returned to their natural state with an undeveloped park.

8 881 November 2002

DOE This Month

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"Ecologists make wetlands part of Fernald Site restoration"

4686

## Ecologists make wetlands part of Fernald Site restoration

Working with engineers and cleanup crews, ecologists at the Department of Energy's Fernald Environmental Management Project are converting excavated and perimeter areas into restored ecological communities using simple, inexpensive restoration technologies. About 2.2 million cubic yards of contaminated soil will be excavated from the 1,050-acre Fernald Site, resulting in both shallow and sloping depressions, many 20 to 30 feet deep.

The ecologists are taking advantage of the numerous depressions and the high clay content in the soil, which together present optimal conditions for the creation of new wetlands. "Although we follow approved restoration designs, we expect to encounter changes in the field during such an extensive

cleanup operation," said Fernald ecologist Eric Woods.

In one project, workers exposed a shallow basin after removing contaminated debris from a two-acre area. To maximize water retention, the ecologists graded the basin, placed a large brush pile in the center, and seeded the area with native wetland grasses and forbs, creating an ideal habitat for nesting and migrating waterfowl, as well as amphibians and other aquatic organisms. From start to finish, Fernald completed the restoration in about one month, with no disruption to the cleanup schedule.

Earlier this year, Fernald initiated the first major restoration project in a remediated area. Using existing depressions made during the excavation of over 400,000 cubic yards of

contaminated soil and debris, ecologists are expanding the wooded corridor and creating an additional floodplain with wetland features along a nearby stream. To form a healthy wetland ecosystem, the ecologists are enhancing the remaining subsoil with composted wood chips and stockpiled topsoil; installing thousands of saplings, shrubs, and seedlings; and planting and seeding native grasses and wildflowers.

This fall, Fernald is conducting multiple restoration projects in remediated areas and non-remediated perimeter areas. This field experience and ongoing collaboration with engineers and cleanup crews will help the ecologists prepare for restoring the former production area. ❖

4686

November 26, 2002

The Journal-Press

Page 2A

"Cells added to Fernald On-Site Disposal Facility"

**Cells added to Fernald  
on-site disposal facility**

**CROSBY TOWNSHIP, Ohio** - The Department of Energy and Fluor Fernald have completed construction of two new disposal cells as part of a seven-cell, 3/4 mile long, on-site disposal facility, said spokesman Gary Stegner.

On Friday, Nov. 8, heavy equipment operators began placing contaminated soil in one of the new 800 foot wide by 400 foot long cells. The other cell was opened for placement Tuesday, Nov. 19, he said.

Construction and loading of the on-site disposal facility is nearly 40 percent complete with overall cleanup at the 1,050 acre site past the midpoint, he said.

When the Fernald cleanup is complete, the on-site disposal facility will encompass approximately 130 acres including a buffer area and will be protected by a 10-foot high fence, he said.

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December 11, 2002

The Harrison Press

Page 3A

*"Soil storage cells completed at Fernald"*

## Soil storage cells completed at Fernald

The Department of Energy (DOE) and Fluor Fernald have completed construction of two new disposal cells as part of a seven-cell, three-quarter-mile-long on-site disposal facility.

On Nov. 8, heavy equipment operators began placing contaminated soil in one of the new 800-foot-wide by 400-foot-long cells. On Nov. 19, the other new cell was opened for placement.

The 70-acre disposal facility, complete with a wastewater collection system, 5-foot-thick earthen and synthetic

liner and 8.75-foot-thick cover is designed to hold 2.5 million cubic yards of waste. Since December 1997, Fluor Fernald crews have placed soil and rubble into the facility at a rate of 200 truckloads per day. Cell 1 is completely full and covered. Cell 2 is full and awaiting cover construction and Cell 3 is over 50 percent full.

"The rain this past spring slowed us down and the extremely dry weather in

Continued off Page 4A

## Fernald

Continued from Page 3A

the summer didn't help us because the clay used for the cell liners needs to possess the right moisture content. Our folks did an excellent job of working through these conditions and delivering the cells safely and on schedule," said Fluor Fernald president Jamie Jameson.

Construction and loading of the on-site disposal facility is nearly 40 percent complete with overall cleanup at the 1050-acre site past the mid-point. The disposal facility will be one of the last projects finished since it will remain open to receive the last of Fernald's contaminated material and soils.

Agreement to build an on-site disposal facility was one of the first recommendations issued by the Fernald Citizens Task Force in June 1995. The task force, now known as the Fernald Citizens Advisory Board, is a group of about a dozen people with diverse backgrounds, representing plant workers, neighbors, regulators, academia and business. Their role is to make recommendations to DOE regarding cleanup and post-closure issues.

In a 1995 report, the advisory board

recommended using a "balanced approach" to address Fernald's waste issue, placing a majority of Fernald's low-level waste in an engineered on-site facility while shipping off site the smaller volumes of more highly contaminated material.

"The decision to assume long-term responsibility for the waste was huge," said DOE-Fernald director Steve McCracken. "First, it demonstrated confidence on the part of our neighbors and regulators that together we could design, build and maintain a facility that would protect workers and the environment. And it also saved billions of dollars of waste handling and transportation costs associated with truck and rail shipments to distant disposal sites."

When the Fernald cleanup is complete, the on-site disposal facility will encompass approximately 130 acres including a buffer area and will be protected by a 10-foot high fence. The Fernald Citizens Advisory Board, U.S. EPA, Ohio EPA and area folks are working with DOE and Fluor Fernald to implement plans that would return the remaining 920 acres to its natural state with an undeveloped park.

December 12, 2002

The Cincinnati Enquirer

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"Radon-gas control unit working at Fernald site"

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## Radon-gas control unit working at Fernald site

By Tim Bonfield  
The Cincinnati Enquirer

Crews at the former Fernald uranium processing plant have begun an important step in removing the most dangerous radioactive waste remaining at the Tri-State's biggest environmental cleanup project.

Over the weekend, workers activated a radon-gas control system to clear out the ra-

dioactive gas trapped in the headspace of Fernald's K-65 silos - the aging, mostly buried tanks of contaminated slurry that have caused several controversies for the decade-long, \$5 billion cleanup project.

The \$20 million system, which took 14 months to design and build, is expected to remove 95 percent of the cancer-causing radon gas from the tanks, said Ray Corradi,

silos project manager for Fluor Fernald, the contractor overseeing the clean-up project.

From the early 1950s to the 1980s, the sprawling Fernald plant about 18 miles northwest of Cincinnati processed uranium ore as an early step in producing atomic bombs.

The K-65 silo waste is a wet, heavy gravel-like substance

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How the radon control system will work: Fans will drive radon-laced air from Fernald's circular K-65 waste silos (left) through a series of pipes and valves that pass the contaminated gas through activated carbon filters and HEPA filters. The radon molecules bind with the carbon, then decay into less harmful by-products within several days. As the filters fill up, they will be disposed with other radioactive waste from Fernald. The radon control system is the first step of a larger effort, shown in this illustration, to encase the K-65 waste in concrete and ship it away.

## Fernald: Radon-gas control system now being used

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that came from the Belgian Congo in the 1950s. Ever since, radium decaying within the slurry has been generating radon gas.

Over the years, the density of the radon gas has built up to 20 million picocuries per liter.

By comparison, the U.S. EPA recommends homeowners take steps to clear radon from their basements when levels reach 4 picocuries per liter.

To prevent the radon gas from escaping, cracks in the silos' covers were sealed from the outside with a special foam in 1986. Then an internal layer of bentonite was pumped into the tanks in 1991.

While Fernald officials began projects years ago to treat tainted groundwater, remove contaminated soil and haul away leftover barrels of waste, disposing of the silo waste has been a long-running, ex-

pensive controversy.

A plan to cook the waste into glass-like chunks in a process called vitrification was dropped after a pilot plant failed amid millions in cost overruns. Officials have since decided to seal the silo waste in concrete to ship it to waste disposal sites in Nevada, but that job still hasn't started.

First, the waste has to be transferred to four recently constructed 750,000-gallon steel tanks, a process scheduled to start in May 2004.

A year-long effort to blend the waste with concrete could start by February 2005, Mr. Corradi said.

If all goes according to plan, the Fernald clean-up project will be done by February 2006, with some low-level radioactive waste to be permanently stored there and most of the 1,050-acre site returned to an undeveloped park-like state.

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"Funding indecision delays cleanup work at Fernald site"

## Funding indecision delays cleanup work at Fernald site

Plans to issue several procurement packages for a project to remove 5,100 cubic yards of low-level waste from a deteriorating concrete silo at the Fernald Environmental Management Project in Ohio are in limbo until early next year because of uncertainty over funding.

Fluor Fernald Silos Project Manager Ray Corradi last week said that officials were assembling several procurement packages for the Silo 3 project that include vacuuming dry low-level waste from the aging silo. Once the material has been removed, it will be packaged and shipped to the Energy Department's Nevada Test Site or to a permitted waste disposal facility, officials say.

Officials also say a series of financial and physical needs must be met to bring the project to life, such as providing potential bidders with a request for proposals that reflects the government's willingness to fund such work in FY-03. Fernald officials would not disclose the project's worth, saying it is considered

"procurement sensitive" information because the RFP has not been issued.

"Holding us up is the availability of funding," Corradi said in an interview Wednesday when asked about the delay in issuing the silo project's procurement packages. In order for the project to move forward as part of DOE's master plan to accelerate and complete cleaning

DOE has asked the [cleanup] sites to accelerate and move forward, but how can you expect someone to do that when they don't have the money to plan for the work?

-Fernald Residents for Environment Safety & Health President Lisa Crawford

up the former uranium processing facility by 2006, Congress must act quickly to pass an FY-03 appropriations bill to fund the work, he said. Absent such a bill, Congress passed in November its fifth

continuing resolution (H. Res. 124) providing appropriations for FY-03 at FY-02 levels. It expires Jan. 11.

"The priority is to keep all of the critical path projects on track and we will necessitate that when there is a need," Corradi said. The Silo 3 project is not one of them. He called the Silo 3 project a "movable quantity" from a list of so-called critical path projects because execution of the project at Fernald is much simpler than two other projects deemed critical: Silo 1 and 2. These facilities contain 8,900 cubic yards of high activity low-level waste. Corradi said Fluor Fernald would be able to maintain work schedules for its critical path projects through the end of February.

A spokesman for DOE's Ohio Field Office, which oversees Fernald cleanup work, said, however, that if Congress fails to pass an FY-03 spending bill by then, the projects "would likely be affected." The term critical path refers to a project's overall integrated schedule for

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"Funding indecision delays cleanup work at Fernald site"

cleanup. "If you've slipped on the activities (on your schedule), those things add up" and make meeting the 2006 cleanup goal less certain, he said.

Both Corradi and the DOE spokesman said they believe that such a scenario is unlikely for Fernald. "In the interest of trying to get the best efficiencies out of our workforce, we've done some sequencing of the work and have people move from project to project," Corradi said.

The continuing resolution allows for the appropriation of funds at FY-02 levels as well as "allows us to preserve the critical path for Silo 1 and 2," Corradi said. The administration's FY-03 budget request for Fernald is \$324 million, a 6% increase from the FY-02 appropriated amount of \$306 million.

Fluor Fernald workers last week installed new radioactive gas control units at Silo 1 and 2 to draw radon from the headspace area. Corradi said the new systems would reduce the concentration of gas by 95%, while providing "a major step forward" in efforts to safely retrieve and dispose of the 8,900 cubic yards of high activity low-level waste that will eventually be treated by chemical stabilization and shipped off-site for disposal.

"With radon levels in check, we can now move to the next step of the project, which is transferring the waste from the aging concrete silos into our newly constructed 750,000 gallon steel tanks," Corradi said. "In the spring of 2004, workers plan to begin pumping the clay-like waste from the silos and moving it into four interim storage tanks, where it will be mixed with cement, packaged and shipped off-site to the Nevada Test Site or a permitted waste disposal facility."

The work contained in the Silo 3 procurement would involve building a facility to house the vacuum process and the excavation process, so the dry material can be transferred to a packaging station.

Once there, the low-level waste would be staged for transportation, by either train or truck.

"A construction contractor has to be procured to fabricate and construct the design pieces for the facility," DOE Silos Project Team Leader Nina Akgunduz said in an interview Wednesday. "These packages could go out in several stages and in many different packages, so the spending of the money is based on how often you allow these procurements to take place." She continued: "When the money is available to use, we can plan on spending that money based on when these procurement packages will be released."

A number of equipment components and construction subcontractors will be required to build ancillary facilities for the Silo 3 project. "Once the facility is built, we take over operations and maintenance," Corradi said. Oak Ridge, Tenn.-based Jacobs Engineering is assisting the design of the project, but authority would remain with Fluor Fernald through the duration of construction, he added.

Fernald Residents for Environment Safety & Health President Lisa Crawford, who attended a technical workshop on the silo projects Tuesday, said she was concerned over funding for the work. "As long as the drag out this budget process, it scares us that we won't get what we requested this year," she said in an interview Wednesday. "DOE has asked the sites to accelerate and move forward, but how can you expect some one to do that when they don't have the money to plan for the work?"

At the meeting, officials handed out a timeline for the silos project that called for start up of slurry operations, readiness and testing beginning in November 2003. "They want to start extracting material out of the silos in May 2004 and have a very aggressive schedule for doing so, but the current money situation leaves us with a big concern," she said.

— Shawn Terry

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"Fernald passes 'hot test'"

ROSS TOWNSHIP  
Fernald site marks  
successful tests

A successful "hot test" of a radon control system at Fernald served as the site's first tangible step in preparation for the removal of 8,900 cubic yards of radioactive waste from the K-65 silos there.

Radon control  
system critical to  
cleanup project

By Kristin McAllister  
kmcalls@journalnews.com  
Journal-News

ROSS TOWNSHIP — A successful "hot test" of a radon control system at Fernald served as the site's first tangible step in preparation for the removal of 8,900 cubic yards of radioactive waste from the 165 silos there.

"It is really the first remedial action on the silos since they were originally built in the mid '50s," said Ray Corneli, silos project manager for site cleanup contractor Fluor Fernald. "Now we are seeing the reality of occupational exposure and are very carefully planning those activities so workers are well-protected, and neighbors and the environment."

The system is designed to draw radon gas from the headspace of the silos, thus reducing the gas concentration by 85 percent — something critical to the safety of soil, workers and nearby residents, said Johnny Reising, DOE associate director of environmental management. "When people think about Fernald, they think of the silos because they represent the greatest radiological issue we have," Reising said. "This shows people we have the ability to construct a system that will give extra comfort and that we are very sincere about protecting them, our workers and the environment."

The system will run simultaneously to the entire removal, treatment, packaging and shipping off site of silos waste. "Because the moment we shut it down, the levels come right back up again, so, it will run continuously," Corneli said, noting the importance of the system to the completion of the silos project. He said Phase 1 — silos headspace — of the system is complete, while additional piping will be added as the waste removal process proceeds.

"Because in all phases of this project, radon is an issue," said Jeff Wagner, Fluor Fernald spokesman.

# Fernald passes 'hot test'

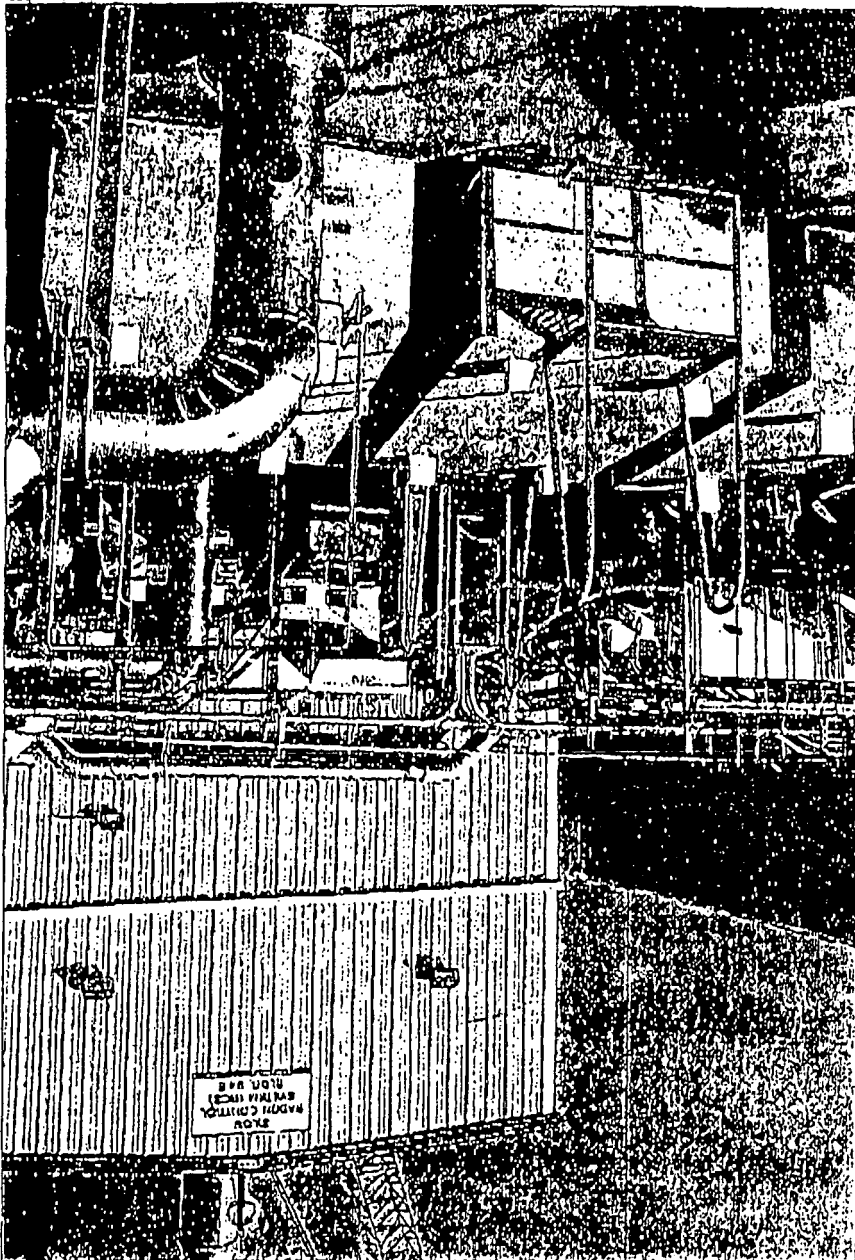


PHOTO SUBMITTED BY THE NEW Fernald silos radon control system proved successful in a recent "hot test." The system will run simultaneously with the retrieval, treatment, packaging and shipment of radioactive waste from within the K-65 silos on the west side of the 1,050-acre site.



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"Fernald passes 'hot test'"

Reising said the significance of the success of the radon control system test can not be overstated.

"It's a very positive step in the right direction to overall remediation," he said. "A success here is extremely important. We're very proud that we were able to bring this system up. It worked very well and was a 100 percent success."

Once silos waste is ready for shipment, it will be sent via rail to one of two off-site locations — the Nevada Test Site or Enviro-care in Utah.

The success of the radon control system "hot test"

allows site officials to move forward with the aggressive 2006 cleanup target-date schedule of the 1,050-acre site.

"We were extremely pleased with this remediation effort," Corradi said. "It exceeded all the design calculations."

Officials in February will construct a silo penetration mockup on silo 4, an existing, empty silo next to silos 1 and 2. Another silo — silo 3 — also exists at the site but does not contain the same radioactive materials as are contained within the K-65 silos.

In April, workers will remove

silos 1 and 2, caps, and in June, they will erect a bridge over each silo in preparation for waste extraction equipment.

Construction of the advanced waste retrieval facility is planned for completion in November, and waste extraction will commence in May 2004. The plan calls for the silos team to use water jets and slurry pumps to remove the clay-like waste from the silos and transfer it into four temporary storage tanks.

After that, waste in February 2005 will be transferred from the temporary storage tanks into the

transfer tank area then to the treatment facility, prior to shipment off site.

"We'll get all material out of the silos roughly by May '05," Corradi said. "In that remaining time, we have to do a safe shut-down activity determining what level of cleanliness we have in the silos to be able to turn them over to demolition and disposal folks."

Wagner said horizontal boring tests confirmed that soil below the silos is contaminated.

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## Fernald

### Silo demolitions to begin early 2006

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"So, there will be soil

excavation," Corradi said. "We're already putting in plans for hill removal and we want to as quickly as possible move the silos towards demolition."

Silos' demolition is slated to begin January 2006, he said.

Reising said short of systems maintenance, which

mostly will be done by workers wearing protective gear, the bulk of waste retrieval, treatment and packaging will be executed in a remote and automated process to avoid worker exposure.

"We're trying to reduce the amount of exposure as much as we possibly can," he said.

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